EXHIBIT K

U.S. Patent No. 10,389,642 – Verizon.

Claim 1

Morris Routing Technologies, LLC ("MRT") provides evidence of infringement of claim 1 of U.S. Patent No. 10,389,624 (hereinafter "the '624 patent") by Verizon. In support thereof, MRT provides the following claim charts.

"Accused Instrumentalities" as used herein refers to at least the Verizon Networks supporting the functionality specified in the SR RFCs and products or services related to the same. These claim charts demonstrate Verizon's infringement, and provide notice of such infringement, by comparing each element of the asserted claims to corresponding components, aspects, and/or features of the Accused Instrumentalities. These claim charts are not intended to constitute an expert report on infringement. These claim charts include information provided by way of example, and not by way of limitation.

The analysis set forth below is based only upon information from publicly available resources regarding the Accused Instrumentalities, as Verizon has not yet provided any non-public information. An analysis of Verizon's (or other third parties') technical documentation and/or software source code may assist in fully identify all infringing features and functionality. Accordingly, MRT reserves the right to supplement this infringement analysis once such information is made available to MRT. Furthermore, MRT reserves the right to revise this infringement analysis, as appropriate, upon issuance of a court order construing any terms recited in the asserted claims.

MRT provides this evidence of infringement and related analysis without the benefit of claim construction or expert reports or discovery. MRT reserves the right to supplement, amend or otherwise modify this analysis and/or evidence based on any such claim construction or expert reports or discovery.

Unless otherwise noted, MRT contends that Verizon directly infringes the '624 patent in violation of 35 U.S.C. § 271(a) by selling, offering to sell, making, using, and/or importing the Accused Instrumentalities. The following exemplary analysis demonstrates that infringement.

Unless otherwise noted, MRT believes and contends that each element of each claim asserted herein is literally met through Verizon's provision of the Accused Instrumentalities. However, to the extent that Verizon attempts to allege that any asserted claim element is not literally met, MRT believes and contends that such elements are met under the doctrine of equivalents. More specifically, in its investigation and analysis of the Accused Instrumentalities, MRT did not identify any substantial differences between the elements of the patent claims and the corresponding features of the Accused Instrumentalities, as set forth herein. In each

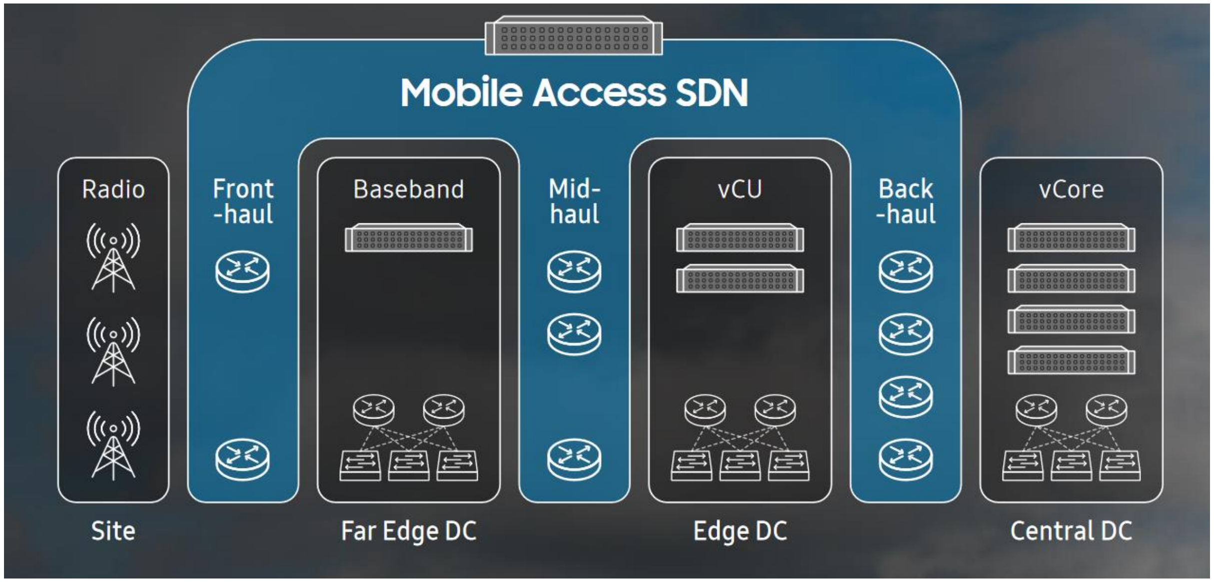
instance, the identified feature of the Accused Instrumentalities performs at least substantially the same function in substantially the same way to achieve substantially the same result as the corresponding claim element.

To the extent the chart of an asserted claim relies on evidence about certain specifically-identified Accused Instrumentalities, MRT asserts that, on information and belief, any similarly-functioning instrumentalities also infringes the charted claim. MRT reserves the right to amend this infringement analysis based on other products made, used, sold, imported, or offered for sale by Verizon. MRT also reserves the right to amend this infringement analysis by citing other claims of the '624 patent, not listed in the claim chart, that are infringed by the Accused Instrumentalities. MRT further reserves the right to amend this infringement analysis by adding, subtracting, or otherwise modifying content in the "Accused Instrumentalities" column of each chart.

Claim	Claim Elements	Accused System (emphasis or labels added)
1	An apparatus, comprising: a network controller configured to be positioned in a Multiprotocol Label Switching (MPLS) network, the network controller including at least one non-transitory memory configured to store instructions, and one or more processors in communication with the at least one non-transitory memory, wherein the one or more processors is configured to execute the instructions to cause the network controller to:	The Accused Instrumentalities include an apparatus, comprising: a network controller configured to be positioned in a Multiprotocol Label Switching (MPLS) network, the network controller including at least one non-transitory memory configured to store instructions, and one or more processors in communication with the at least one non-transitory memory, wherein the one or more processors is configured to execute the instructions to cause the network controller to: The Accused Instrumentalities necessarily require at least one non-transitory memory (e.g. read-only memory, random access memory, etc.) configured to store instructions (e.g. code, etc.) and one or more processors (e.g. network processor(s), etc.) in communication with the at least one non-transitory memory, to execute the instructions so as to perform the claimed functionality set forth below. **<u>NOTE</u>**: See, for example, the evidence below (emphasis added, if any): On information and belief, Verizon makes, uses, sells, offers for sale, and/or imports the Accused Instrumentalities. "Ericsson is a long-standing vendor of Verizon. The carrier is also working with Samsung. But Verizon, notably, did not award a 5G contract to Nokia." https://www.fiercewireless.com/operators/ericsson-wins-8-3b-5g-deal-verizon-its-largest-contract-ever "It moves the vendor into a top-dog position relative to other suppliers, including Samsung and Nokia (NYSE: NOK), which also work with Verizon (though Nokia was shouldered aside when Verizon chose Samsung for a large contract in 2020)" https://www.futuriom.com/articles/news/ericsson-signs-8-3-billion-contract-to-supply-verizon-5g/2021/07 "Samsung Electronics has won a KRW7.9trn ($6.6 billion) deal to supply network equipment to Verizon.

		… Until now, Verizon has used Ericsson, Nokia and Samsung in its RAN. However, Rosenblatt analyst Ryan Koontz made headlines in July when he claimed that Verizon was preparing to oust Nokia and split its RAN equally between Ericsson and Samsung." https://telecoms.com/506368/samsung-joins-the-5g-ran-big-leagues-with-6-6bn-verizon-deal/ "Router 6000 Series Ericsson Router 6000 series is a radio integrated, service provider SDN enabled IP transport portfolio managed by a single end-to-end management system. It delivers high-performance connectivity for LTE, LTE- advanced and 5G- applications. … Segment routing and high-scale QoS for network slicing, simplicity, scalability and infrastructure utilization" https://www.ericsson.com/en/portfolio/networks/ericsson-radio-system/mobile-transport/router "Ericsson's Router 6000 portfolio supports **end-to-end Segment Routing over MPLS** with link-state routing protocol IS-IS and OSPF (Open Shortest Path First) control planes. Traffic Engineering options are also supported. . . . From end of 2022, Ericsson has progressively introduced support for **SRv6** on the latest members of its Router 6000 family – Router 6673 and Router 6273. Two new routers unveiled at Mobile World Congress 2023 (Router 6676 and Router 6678) will also support SRv6." https://www.ericsson.com/en/news/2023/5/ericsson-steps-up-efforts-to-reduce-complexity-in-transport-networks; https://eantc.de/wp-content/uploads/2023/04/EANTC-InteropTest2023-TestReport.pdf; https://eantc.de/wp-content/uploads/2023/12/EANTC-MPLSSDNInterop2024-TestReport-v1.3.pdf. "When introduced into the network, L4S will work in conjunction with other advanced technologies in the network to provide the necessary speeds, latency and performance for

		more robust solutions. Active Queue Management, caches, Mobile Edge Compute (MEC) capabilities, the Verizon Cloud Platform (VCP), a fully virtualized 5G stand alone core, virtualized RAN, artificial intelligence, network slicing, and expansive orchestration will all work harmoniously in Verizon's 5G network to provide the advanced capabilities needed for robust solutions like XR applications, vehicle-to-vehicle communication while driving, robots interacting on a factory floor, thousands of sensors in a warehouse sending real-time information or drones sending near real time video while flying." https://www.verizon.com/about/news/verizon-and-ericsson-collaborate-innovative-5g-feature-enhance-user-experience "Verizon's massive multi-year redesign of its network architecture has led to its ability to deploy many network feature enhancements that improve the customer experience instantaneously, without interrupting customers' service. This transformation includes its development of a Kubernetes-based Webscale Cloud platform for all core network functions, cloud-native architecture, extensive orchestration and automation, and end-to-end virtualization." https://www.verizon.com/about/news/verizon-network-transformation-provides-faster-upgrades "Verizon recently began installation of C-band equipment from Ericsson and Samsung Electronics Co., Ltd to speed deployment of its 5G Ultra Wideband and fixed wireless broadband service on its recently acquired C-band spectrum." https://www.verizon.com/about/news/verizon-starts-c-band-equipment-deployment "7750 service router … Addresses the full spectrum of IP routing requirements with extensive IP/MPLS, QoS, segment routing and SDN capabilities enabled by our feature-rich and highly robust SR OS" https://www.nokia.com/networks/products/7750-service-router/#features-and-benefits; *see also* https://documentation.nokia.com/html/0_add-h-f/93-0073-HTML/7750_SR_OS_Router_Configuration_Guide/appen_standards.pdf

		"Samsung and Verizon Charge Ahead with vRAN" https://news.samsung.com/us/samsung-verizon-charge-ahead-with-vran/ "This work has paid off for the company. Samsung can now provide ***end-to-end 5G solutions*** with devices (smartphone and CPE), 5G new radio (5G NR) in both mmWave and sub 6GHz, ***virtualized 5G core***, and network automation and optimization tools. The company has worked with HARMAN to create the first 5G-ready telematics control unit (TCU); TCU is the foundation of the connected car. ***With Verizon, Samsung had the first FCC-certified, end-to-end 5G offering***. Its 5G investment results do not stop there." https://www.samsung.com/global/business/networks/insights/blog/persistence-pays-off-for-samsung-networks-in-becoming-a-major-5g-radio-access-network-vendor/ 

		"Mobile Access SDN also provides segment routing per slice and contributes to help the operator reduce OPEX through plug and play functions and fast fault detection for troubleshooting." https://images.samsung.com/is/content/samsung/assets/global/business/networks/insights/brochures/1020_maximize-network-flexibility-through-open-and-centralized-network-management/1020_maximize-network-flexibility-through-open-and-centralized-network-management.pdf at 4. "Verizon, Samsung Electronics Co., Ltd., and Qualcomm Technologies, Inc., continue to push the limits of 5G technology, using innovation to continuously drive greater performance from this transformational technology. . . . Network technology used in the demo included Samsung's 28 GHz 5G Compact Macro and virtualized RAN (vRAN) and ***Core (vCore)*** along with a smartphone form-factor test device powered by the flagship Snapdragon® X65 5G Modem-RF System." https://www.samsung.com/global/business/networks/insights/press-release/1012-uploading-data-is-about-to-get-a-whole-lot-faster-on-5g/ "IETF To support ***Network Slicing***, the IP router should be enhanced, which will extend existing protocols, such as ***Segment Routing (SR)*** and L3VPN." https://www.gsma.com/solutions-and-impact/technologies/networks/wp-content/uploads/2018/07/Network-Slicing-Use-Case-Requirements-fixed.pdf "Samsung's Core and RAN are designed to support the needs of network slicing." https://www.samsung.com/global/business/networks/solutions/network-slicing/ "Network slicing involves the end-to-end (E2E) 5G network and requires various state-of-the-art technologies based on standards and open source communities such as MGMN, 3GPP, ETSI, ONF, IETF, O-RAN and ONAP. Samsung is contributing to these industry endeavors and is able to provide an end-to-end network slicing solution that is comprised of an

		orchestration platform, slice management system and each network domain (radio access, core, transport). All of these components can be arranged in various configurations to fulfill the requirements and SLAs of each slice." https://www.samsung.com/global/business/networks/solutions/network-slicing/ "In order to help the operators efficiently manage and operate these [Network Functions (NFs)], Samsung offers orchestration, automation and analytics solutions. The Samsung [vCore] solution includes Cloud Management Solutions supporting MANO (Management and Orchestration), CaaS/PaaS and orchestration solutions—GSO (Global Service Orchestration), DSO (Domain Service Orchestration) and ***Network Slicing Manager***—which oversee the NFs from deployment to scaling." https://www.samsung.com/global/business/networks/insights/blog/samsung-vcore-is-at-the-core-of-5g-evolution/ "The trials, conducted over Verizon's network (using C-band Special Temporary Authority granted to Verizon by the FCC) in Texas, Connecticut and Massachusetts, used Samsung's fully virtualized RAN (vRAN) solution built on its own software stack and C-band 64T64R Massive MIMO radio in coordination ***with Verizon's virtualized core***. . . . Cloud native virtualized architecture leads to greater flexibility, faster delivery of services, greater scalability, and improved cost efficiency in networks, paving the way for wide-scale ***mobile edge computing and <u>network slicing</u>***." https://www.samsung.com/global/business/networks/insights/press-release/0726_verizon-and-samsung-complete-fully-virtualized-5g-data-session-on-c-band-spectrum/ "Samsung's SDN portfolio covers all layers of the SDN architecture including controllers, orchestrators, switches and routers. Key benefits of Samsung's SDN include: … • Openness : The company's cloud-native, open source-based SDN solutions can integrate seamlessly with third-party switches and routers. Samsung's SDN is **<u>based on the Open</u>**

		Network Operating System (ONOS), supporting various types of open interfaces to enable multi-vendor interoperability. • End-to-End Network Slicing : SDN technology can automate network slicing end-to-end, which will help fulfill service-level agreement (SLA) requirements, even at the transport level. Combined with its RAN and Core, Samsung's SDN solution will enable mobile operators to offer optimal networks for various business models through company's end-to-end network slicing capability." https://www.samsung.com/global/business/networks/insights/press-release/0721-samsung-expands-its-lineup-of-sdn-solutions/. ONOS and ONF specifications support SR. *See, e.g.*, https://wiki.onosproject.org/pages/viewpage.action?pageId=39813572; https://wiki.onosproject.org/display/ONOS/Master-Segment+Routing; https://www.epsglobal.com/about-eps-global/blog/march-2019/open-networking-life-on-the-edge; https://web.archive.org/web/20200814022440/ https://www.convergedigest.com/2019/09/at-sees-progress-with-onfs-seba-trellis.html; https://docs.sd-fabric.org/master/specification.html?highlight=segment%20routing#l3-features; https://wiki.onosproject.org/display/ONOS/CORD%3A+Leaf-Spine+Fabric+with+Segment+Routing. "Verizon is leveraging Ribbon's portfolio of Voice Products including the vC20 Call Controller, G5 Line Access Gateway, G6 Universal Media Gateway, virtual and Cloud-native Session Border Controllers, and other products which allows for the consolidation and replacement of equipment with energy efficient, software-centric platforms while maintaining full feature functionality." https://ribboncommunications.com/company/media-center/press-releases/ribbon-selected-provide-advanced-voice-network-platform-and-services-verizon

		"Juniper solutions are used across Verizon's access, edge, and core networks. Building on its decades-long partnership with Juniper, Verizon is deploying Juniper PTX10008, PTX10004, and PTX10016 routers for its next-generation packet core that supports 400G today and provides a seamless path to 800G." https://www.juniper.net/us/en/customers/verizon-case-study.html#:~:text=Juniper%20solutions%20are%20used%20across,a%20seamless%20path%20to%20800G. "**<u>Source Packet Routing in Networking (SPRING)—SPRING on PTX10008 supports the latest SPRING innovations</u>** such as path provisioning via BGP SR-TE, and PCED protocols. It also supports many more features such as Topology independent loop free alternates (TI-LFA) and Operation, Administration, and Maintenance (OAM)." https://www.juniper.net/documentation/us/en/hardware/ptx10008/topics/topic-map/ptx10008-system-overview.html "Get full IP/MPLS and SRv6 services, consistent low latency, impressive power efficiency, and secure wire-rate forwarding at scale, along with the high reliability needed to meet strict service-level agreements (SLAs)." https://www.juniper.net/us/en/products/routers/ptx-series/ptx10000-ptx10004-ptx10008-and-ptx10016-packet-transport-routers.html; *see also* https://www.juniper.net/us/en/products/routers/ptx-series/ptx10000-line-of-packet-transport-routers-datasheet.html; https://www.juniper.net/documentation/us/en/software/junos/standards/topics/concept/segment-routing.html (supported segment routing standards including RFC8402, RFC8660, RFC8663, RFC8986, RFC9256, draft version of RFC9352 among others) **<u>Network Slicing</u>** "The recent demonstration successfully registered a 5G smartphone to **multiple network slices** and passed data through the entire network. The demonstration used a commercially available smartphone, virtualized and non-virtualized RAN equipment in production in the field, and Verizon's multi-vendor 5G standalone core. This end-to-end test successfully accessed network slicing capabilities from the device and validated the ability for the device

		chipset, operating system, application, radio network base station, and the core of the network to work in harmony to demonstrate a **full end-to-end path for data to travel on a virtual network slice**." https://www.verizon.com/about/news/verizon-major-step-network-slicing-capabilities "US operator Verizon continued to ramp its **network slicing** capabilities by conducting a field trial which demonstrated improved performance levels for first responders using its standalone (SA) 5G core. . . . Adam Koeppe, SVP of network and technology planning at Verizon, stated efforts spanning five years to shift to a cloud-native architecture and SA 5G core had enabled it to match network resources with the desired performance characteristics through a slice." https://www.mobileworldlive.com/verizon/verizon-trials-network-slicing-for-public-safety-services/ "The Verizon Cloud Platform (VCP), on which the 5G core is built, is based on a Webscale software architecture with advanced technologies designed specifically for telco workloads. . . . The 5G standalone core's cloud-native virtualized applications, in combination with built-in Artificial Intelligence (AI) and Machine Learning (ML), will enable the dynamic allocation of the appropriate resources, referred to as **network slicing**." https://www.verizon.com/about/news/verizon-moves-commercial-traffic-5g-core "Verizon's massive multi-year redesign of its network architecture has led to its ability to deploy many network feature enhancements that improve the customer experience instantaneously, without interrupting customers' service. This transformation includes its development of a Kubernetes-based Webscale Cloud platform for all core network functions, cloud-native architecture, extensive orchestration and automation, and **end-to-end virtualization**." https://www.verizon.com/about/news/verizon-network-transformation-provides-faster-upgrades

		"This distributed platform supports edge services, private cloud services, Network Function Virtualization tools, Cloud Native Functions, Web applications, mapping and spatial analysis tools, orchestration tools, service assurance tools, auto-remediation, and compute offerings. . . . This directional technology platform will support the stand alone core, the non-stand alone core, **network slicing** and VoNR services." https://www.verizon.com/about/news/verizon-network-transformation-provides-faster-upgrades **Standards** *See, e.g.*, https://www.etsi.org/deliver/etsi_ts/128500_128599/128541/18.07.00_60/ts_128541v180700p.pdf. (at pg. 396). *See, e.g.*, ETSI GS NFV-TST 009 V3.4.1 (2020-12) *available at* https://www.etsi.org/deliver/etsi_gs/NFV-TST/001_099/009/03.04.01_60/gs_NFV-TST009v030401p.pdf; ETSI GR NFV-IFA 035 V5.1.1 (2023-10) *available at* https://www.etsi.org/deliver/etsi_gr/NFV-IFA/001_099/035/05.01.01_60/gr_NFV-IFA035v050101p.pdf. *See, e.g.*, https://docs.sd-fabric.org/master/specification.html; https://wiki.onosproject.org/display/ONOS/Master-Segment+Routing; https://wiki.onosproject.org/pages/viewpage.action?pageId=39813572; https://www.epsglobal.com/about-eps-global/blog/march-2019/open-networking-life-on-the-edge. **NOTE**: Further, the "Example Topology" below (and related citations) are set forth for illustrative purposes only, and should not be construed as limiting in any manner (as other topologies infringe, as well). **SR-MPLS-Specific**

"Nodes that are SR-MPLS capable can process SR-MPLS packets. Not all of the nodes in an SR-MPLS domain are SR-MPLS capable. Some nodes may be "legacy routers" that cannot handle SR-MPLS packets but can forward IP packets. A node capable of SR-MPLS MAY advertise its capabilities using the IGP as described in Section 3. There are six types of nodes in an SR-MPLS domain:

- Domain ingress nodes that receive packets and encapsulate them for transmission across the domain. Those packets may be any payload protocol including native IP packets or packets that are already MPLS encapsulated.
- Legacy transit nodes that are IP routers but that are not SR-MPLS capable (i.e., are not able to perform Segment Routing).
- Transit nodes that are SR-MPLS capable but that are not identified by a SID in the SID stack.
- Transit nodes that are SR-MPLS capable and need to perform SR-MPLS routing because they are identified by a SID in the SID stack.
- The penultimate node capable of SR-MPLS on the path that processes the last SID on the stack on behalf of the domain egress node.
- The domain egress node that forwards the payload packet for ultimate delivery."

https://datatracker.ietf.org/doc/rfc8663/?include_text=1

"In a centralized scenario, the segments are allocated and instantiated by an SR controller. The SR controller decides which nodes need to steer which packets on which source-routed policies. The SR controller computes the source-routed policies. The SR architecture does not restrict how the controller programs the network. Likely options are Network Configuration Protocol (NETCONF), Path Computation Element Communication Protocol (PCEP), and BGP. The SR architecture does not restrict the number of SR controllers. Specifically, multiple SR controllers may program the same SR domain. The SR architecture allows these SR controllers to discover which SIDs are instantiated at which nodes and which sets of local (SRLB) and global (SRGB) labels are available at which node.

A hybrid scenario complements a base distributed control plane with a centralized controller. For example, when the destination is outside the IGP domain, the SR controller may compute

		an SR Policy on behalf of an IGP node. The SR architecture does not restrict how the nodes that are part of the distributed control plane interact with the SR controller. Likely options are PCEP and BGP. Hosts MAY be part of an SR domain. A centralized controller can inform hosts about policies either by pushing these policies to hosts or by responding to requests from hosts. … SR Policy: an ordered list of segments. The headend of an SR Policy steers packets onto the SR Policy. The list of segments can be specified explicitly in SR-MPLS as a stack of labels and in SRv6 as an ordered list of SRv6 SIDs. Alternatively, the list of segments is computed based on a destination and a set of optimization objective and constraints (e.g., latency, affinity, SRLG, etc.). The computation can be local or delegated to a PCE server. An SR Policy can be configured by the operator, provisioned via NETCONF [RFC6241] or provisioned via PCEP [RFC5440]. … Segment List Depth: the number of segments of an SR Policy. The entity instantiating an SR Policy at a node N should be able to discover the depth-insertion capability of the node N. For example, the PCEP SR capability advertisement described in [PCEP-SR-EXT] is one means of discovering this capability." https://datatracker.ietf.org/doc/rfc8402/?include_text=1
	identify, for each of a plurality of nodes in the MPLS network, location information that identifies a location of a corresponding one of the plurality of nodes in a topology of the MPLS network accessible to the controller;	The Accused Instrumentalities are required to identify, for each of a plurality of nodes in the MPLS network, location information that identifies a location of a corresponding one of the plurality of nodes in a topology of the MPLS network accessible to the controller; **NOTE**: See, for example, the evidence above and below (emphasis added, if any): **SR-MPLS-Specific** "Nodes that are SR-MPLS capable can process SR-MPLS packets. Not all of the nodes in an SR-MPLS domain are SR-MPLS capable. Some nodes may be "legacy routers" that cannot handle SR-MPLS packets but can forward IP packets. A node capable of SR-MPLS MAY

		advertise its capabilities using the IGP as described in Section 3. There are six types of nodes in an SR-MPLS domain: • Domain ingress nodes that receive packets and encapsulate them for transmission across the domain. Those packets may be any payload protocol including native IP packets or packets that are already MPLS encapsulated. • Legacy transit nodes that are IP routers but that are not SR-MPLS capable (i.e., are not able to perform Segment Routing). • Transit nodes that are SR-MPLS capable but that are not identified by a SID in the SID stack. • Transit nodes that are SR-MPLS capable and need to perform SR-MPLS routing because they are identified by a SID in the SID stack. • The penultimate node capable of SR-MPLS on the path that processes the last SID on the stack on behalf of the domain egress node. • The domain egress node that forwards the payload packet for ultimate delivery." https://datatracker.ietf.org/doc/rfc8663/?include_text=1 "In a centralized scenario, the segments are allocated and instantiated by an SR controller. The SR controller decides which nodes need to steer which packets on which source-routed policies. The SR controller computes the source-routed policies. The SR architecture does not restrict how the controller programs the network. Likely options are Network Configuration Protocol (NETCONF), Path Computation Element Communication Protocol (PCEP), and BGP. The SR architecture does not restrict the number of SR controllers. Specifically, multiple SR controllers may program the same SR domain. The SR architecture allows these SR controllers to discover which SIDs are instantiated at which nodes and which sets of local (SRLB) and global (SRGB) labels are available at which node. A hybrid scenario complements a base distributed control plane with a centralized controller. For example, when the destination is outside the IGP domain, the SR controller may compute an SR Policy on behalf of an IGP node. The SR architecture does not restrict how the nodes that are part of the distributed control plane interact with the SR controller. Likely options are PCEP and BGP.

		Hosts MAY be part of an SR domain. A centralized controller can inform hosts about policies either by pushing these policies to hosts or by responding to requests from hosts. … SR Policy: an ordered list of segments. The headend of an SR Policy steers packets onto the SR Policy. The list of segments can be specified explicitly in SR-MPLS as a stack of labels and in SRv6 as an ordered list of SRv6 SIDs. Alternatively, the list of segments is computed based on a destination and a set of optimization objective and constraints (e.g., latency, affinity, SRLG, etc.). The computation can be local or delegated to a PCE server. An SR Policy can be configured by the operator, provisioned via NETCONF [RFC6241] or provisioned via PCEP [RFC5440]. … Segment List Depth: the number of segments of an SR Policy. The entity instantiating an SR Policy at a node N should be able to discover the depth-insertion capability of the node N. For example, the PCEP SR capability advertisement described in [PCEP-SR-EXT] is one means of discovering this capability." https://datatracker.ietf.org/doc/rfc8402/?include_text=1
	receive, for each of the plurality of nodes in the MPLS network, identifier information that identifies a corresponding identifier in a corresponding identifier space which is specific to the corresponding one of the plurality of nodes and which is based on a metric space having an origin specific to the corresponding one of the	The Accused Instrumentalities are required to receive, for each of the plurality of nodes in the MPLS network, identifier information that identifies a corresponding identifier in a corresponding identifier space which is specific to the corresponding one of the plurality of nodes and which is based on a metric space having an origin specific to the corresponding one of the plurality of nodes, where at least a portion of the plurality of nodes are in a span of a first portion of the MPLS network such that the corresponding identifier of each of the at least portion of nodes is unique in the span, and the corresponding identifier space of each of the at least portion of nodes is configured to have an identical origin, resulting in a scoped identifier space that includes globally unique identifiers for each of the at least portion of nodes in the span; **NOTE**: See, for example, the evidence above and below (emphasis added, if any): **SR-MPLS-Specific**

	plurality of nodes, where at least a portion of the plurality of nodes are in a span of a first portion of the MPLS network such that the corresponding identifier of each of the at least portion of nodes is unique in the span, and the corresponding identifier space of each of the at least portion of nodes is configured to have an identical origin, resulting in a scoped identifier space that includes globally unique identifiers for each of the at least portion of nodes in the span;	"MPLS Segment Routing (SR-MPLS) is a method of source routing a packet through an MPLS data plane by imposing a stack of MPLS labels on the packet to specify the path together with any packet-specific instructions to be executed on it. SR-MPLS can be leveraged to realize a source-routing mechanism across MPLS, IPv4, and IPv6 data planes by using an MPLS label stack as a source-routing instruction set while making no changes to SR-MPLS specifications and interworking with SR-MPLS implementations. . . . MPLS Segment Routing (SR-MPLS) [RFC8660] is a method of source routing a packet through an MPLS data plane. This is achieved by the sender imposing a stack of MPLS labels that partially or completely specify the path that the packet is to take and any instructions to be executed on the packet as it passes through the network. SR-MPLS uses an MPLS label stack to encode a sequence of source-routing instructions. This can be used to realize a source-routing mechanism that can operate across MPLS, IPv4, and IPv6 data planes. This approach makes no changes to SR-MPLS specifications and allows interworking with SR-MPLS implementations. More specifically, the source-routing instructions in a source-routed packet could be uniformly encoded as an MPLS label stack regardless of whether the underlay is IPv4, IPv6 (including Segment Routing for IPv6 (SRv6) [RFC8354]), or MPLS." https://datatracker.ietf.org/doc/rfc8663/?include_text=1 "3.1. IGP-Prefix Segment (Prefix-SID) An IGP-Prefix segment is an IGP segment attached to an IGP prefix. An IGP-Prefix segment is global (unless explicitly advertised otherwise) within the SR domain. The context for an IGP-Prefix segment includes the prefix, topology, and algorithm. Multiple SIDs MAY be allocated to the same prefix so long as the tuple <prefix, topology, algorithm> is unique. . . . 3.2. IGP-Node Segment (Node-SID) An IGP Node-SID MUST NOT be associated with a prefix that is owned by more than one router within the same routing domain. . . .

		3.4. IGP-Adjacency Segment (Adj-SID) The adjacency is formed by the local node (i.e., the node advertising the adjacency in the IGP) and the remote node (i.e., the other end of the adjacency). The local node MUST be an IGP node. The remote node may be an adjacent IGP neighbor or a non-adjacent neighbor (e.g., a forwarding adjacency, [RFC4206]). A packet injected anywhere within the SR domain with a segment list {SN, SNL} where SN is the Node-SID of node N and SNL is an Adj-SID attached by node N to its adjacency over link L will be forwarded along the shortest path to N and then be switched by N, without any IP shortest-path consideration, towards link L. If the Adj-SID identifies a set of adjacencies, then the node N load-balances the traffic among the various members of the set." https://datatracker.ietf.org/doc/rfc8402/?include_text=1 "SR Global Block (SRGB): the set of global segments in the SR domain. If a node participates in multiple SR domains, there is one SRGB for each SR domain. In SR-MPLS, SRGB is a local property of a node and identifies the set of local labels reserved for global segments. In SR-MPLS, using identical SRGBs on all nodes within the SR domain is strongly recommended. Doing so eases operations and troubleshooting as the same label represents the same global segment at each node. In SRv6, the SRGB is the set of global SRv6 SIDs in the SR domain. . . . Global Segment: a segment that is part of the SRGB of the domain. The instruction associated with the segment is defined at the SR domain level. A topological shortest-path segment to a given destination within an SR domain is a typical example of a global segment." https://datatracker.ietf.org/doc/rfc8402/?include_text=1
	based on at least a portion of the location information, determine, for a pair of the plurality of nodes in the MPLS	The Accused Instrumentalities are required to, based on at least a portion of the location information, determine, for a pair of the plurality of nodes in the MPLS network, at least one network path for transmitting data from a first node of the pair toward a second node of the pair;

	network, at least one network path for transmitting data from a first node of the pair toward a second node of the pair;	**<u>NOTE</u>**: See, for example, the evidence above and below (emphasis added, if any): **<u>SR-MPLS-Specific</u>** "MPLS Segment Routing (SR-MPLS) is a method of source routing a packet through an MPLS data plane by imposing a stack of MPLS labels on the packet to specify the path together with any packet-specific instructions to be executed on it. SR-MPLS can be leveraged to realize a source-routing mechanism across MPLS, IPv4, and IPv6 data planes by using an MPLS label stack as a source-routing instruction set while making no changes to SR-MPLS specifications and interworking with SR-MPLS implementations. . . . MPLS Segment Routing (SR-MPLS) [RFC8660] is a method of source routing a packet through an MPLS data plane. This is achieved by the sender imposing a stack of MPLS labels that partially or completely specify the path that the packet is to take and any instructions to be executed on the packet as it passes through the network. SR-MPLS uses an MPLS label stack to encode a sequence of source-routing instructions. This can be used to realize a source-routing mechanism that can operate across MPLS, IPv4, and IPv6 data planes. This approach makes no changes to SR-MPLS specifications and allows interworking with SR-MPLS implementations. More specifically, the source-routing instructions in a source-routed packet could be uniformly encoded as an MPLS label stack regardless of whether the underlay is IPv4, IPv6 (including Segment Routing for IPv6 (SRv6) [RFC8354]), or MPLS." https://datatracker.ietf.org/doc/rfc8663/?include_text=1 "2.2. Candidate Path and Segment List An SR Policy is associated with one or more candidate paths. A candidate path is the unit for signaling of an SR Policy to a headend via protocol extensions like the Path Computation Element Communication Protocol (PCEP) [RFC8664] [PCEP-SR-POLICY-CP] or BGP SR Policy [BGP-SR-POLICY]. A segment list represents a specific source-routed path to send traffic from the headend to the endpoint of the corresponding SR Policy.

		A candidate path is either dynamic, explicit, or composite." https://datatracker.ietf.org/doc/rfc9256/
	store, based on the identifier information, network path information that identifies the at least one network path;	The Accused Instrumentalities are required to store, based on the identifier information, network path information that identifies the at least one network path; **NOTE**: See, for example, the evidence above and below (emphasis added, if any): **SR-MPLS-Specific** "5.0 Binding Segment In order to provide greater scalability, network opacity, and service independence, SR utilizes a Binding SID (BSID). The BSID is bound to an SR Policy, instantiation of which may involve a list of SIDs. Any packets received with an active segment equal to BSID are steered onto the bound SR Policy. A BSID may be either a local or a global SID. If local, a BSID SHOULD be allocated from the SRLB. If global, a BSID MUST be allocated from the SRGB. Use of a BSID allows the instantiation of the policy (the SID list) to be stored only on the node or nodes that need to impose the policy. Direction of traffic to a node supporting the policy then only requires imposition of the BSID. If the policy changes, this also means that only the nodes imposing the policy need to be updated. Users of the policy are not impacted. 5.1. IGP Mirroring Context Segment One use case for a Binding segment is to provide support for an IGP node to advertise its ability to process traffic originally destined to another IGP node, called the "mirrored node" and identified by an IP address or a Node-SID, provided that a Mirroring Context segment is inserted in the segment list prior to any service segment local to the mirrored node.

		When a given node B wants to provide egress node A protection, it advertises a segment identifying node's A context. Such a segment is called "Mirroring Context segment" and is identified by the Mirror SID. The Mirror SID is advertised using the Binding segment defined in SR IGP protocol extensions [ISIS-SR-EXT]. In the event of a failure, a Point of Local Repair (PLR) diverting traffic from A to B does a PUSH of the Mirror SID on the protected traffic. When receiving the traffic with the Mirror SID as the active segment, B uses that segment and processes underlying segments in the context of A. . . . 8.1. SR-MPLS SR allows the expression of a source-routed path using a single segment (the Binding SID)" https://tools.ietf.org/html/rfc8402 "3.1. IGP-Prefix Segment (Prefix-SID) An IGP-Prefix segment is an IGP segment attached to an IGP prefix. An IGP-Prefix segment is global (unless explicitly advertised otherwise) within the SR domain. The context for an IGP-Prefix segment includes the prefix, topology, and algorithm. Multiple SIDs MAY be allocated to the same prefix so long as the tuple <prefix, topology, algorithm> is unique. . . . 3.2. IGP-Node Segment (Node-SID) An IGP Node-SID MUST NOT be associated with a prefix that is owned by more than one router within the same routing domain. . . . 3.4. IGP-Adjacency Segment (Adj-SID)

		The adjacency is formed by the local node (i.e., the node advertising the adjacency in the IGP) and the remote node (i.e., the other end of the adjacency). The local node MUST be an IGP node. The remote node may be an adjacent IGP neighbor or a non-adjacent neighbor (e.g., a forwarding adjacency, [RFC4206]). A packet injected anywhere within the SR domain with a segment list {SN, SNL} where SN is the Node-SID of node N and SNL is an Adj-SID attached by node N to its adjacency over link L will be forwarded along the shortest path to N and then be switched by N, without any IP shortest-path consideration, towards link L. If the Adj-SID identifies a set of adjacencies, then the node N load-balances the traffic among the various members of the set." https://datatracker.ietf.org/doc/rfc8402/?include_text=1
	receive lookup information that identifies the first node and the second node of the pair;	The Accused Instrumentalities are required to receive lookup information that identifies the first node and the second node of the pair; **NOTE**: See, for example, the evidence above and below (emphasis added, if any): **SR-MPLS-Specific** "SR routers receive advertisements of SIDs (index, label, or IPv6 address) from the different routing protocols being extended for SR. Each of these protocols have monitoring and troubleshooting mechanisms to provide operation and management functions for IP addresses that must be extended in order to include troubleshooting and monitoring functions of the SID." https://datatracker.ietf.org/doc/rfc8402/?include_text=1 "Forwarding Information Base (FIB): the forwarding table of a node" https://datatracker.ietf.org/doc/rfc8402/?include_text=1
	look up the network path information, utilizing the lookup information; and	The Accused Instrumentalities are required to look up the network path information, utilizing the lookup information; and

		<u>NOTE</u>: See, for example, the evidence above and below (emphasis added, if any): **<u>SR-MPLS-Specific</u>** "5.0 Binding Segment In order to provide greater scalability, network opacity, and service independence, SR utilizes a Binding SID (BSID). The BSID is bound to an SR Policy, instantiation of which may involve a list of SIDs. Any packets received with an active segment equal to BSID are steered onto the bound SR Policy. A BSID may be either a local or a global SID. If local, a BSID SHOULD be allocated from the SRLB. If global, a BSID MUST be allocated from the SRGB. Use of a BSID allows the instantiation of the policy (the SID list) to be stored only on the node or nodes that need to impose the policy. Direction of traffic to a node supporting the policy then only requires imposition of the BSID. If the policy changes, this also means that only the nodes imposing the policy need to be updated. Users of the policy are not impacted. 5.1. IGP Mirroring Context Segment One use case for a Binding segment is to provide support for an IGP node to advertise its ability to process traffic originally destined to another IGP node, called the "mirrored node" and identified by an IP address or a Node-SID, provided that a Mirroring Context segment is inserted in the segment list prior to any service segment local to the mirrored node. When a given node B wants to provide egress node A protection, it advertises a segment identifying node's A context. Such a segment is called "Mirroring Context segment" and is identified by the Mirror SID. The Mirror SID is advertised using the Binding segment defined in SR IGP protocol extensions [ISIS-SR-EXT].

		In the event of a failure, a Point of Local Repair (PLR) diverting traffic from A to B does a PUSH of the Mirror SID on the protected traffic. When receiving the traffic with the Mirror SID as the active segment, B uses that segment and processes underlying segments in the context of A. . . . 8.1. SR-MPLS SR allows the expression of a source-routed path using a single segment (the Binding SID)." https://tools.ietf.org/html/rfc8402 "3.1. IGP-Prefix Segment (Prefix-SID) An IGP-Prefix segment is an IGP segment attached to an IGP prefix. An IGP-Prefix segment is global (unless explicitly advertised otherwise) within the SR domain. The context for an IGP-Prefix segment includes the prefix, topology, and algorithm. Multiple SIDs MAY be allocated to the same prefix so long as the tuple <prefix, topology, algorithm> is unique. . . . 3.2. IGP-Node Segment (Node-SID) An IGP Node-SID MUST NOT be associated with a prefix that is owned by more than one router within the same routing domain. . . . 3.4. IGP-Adjacency Segment (Adj-SID) The adjacency is formed by the local node (i.e., the node advertising the adjacency in the IGP) and the remote node (i.e., the other end of the adjacency). The local node MUST be an IGP node. The remote node may be an adjacent IGP neighbor or a non-adjacent neighbor (e.g., a forwarding adjacency, [RFC4206]). A packet injected anywhere within the SR domain with a segment list {SN, SNL} where SN is the Node-SID of node N and SNL is an Adj-SID attached by node N to its adjacency over

		link L will be forwarded along the shortest path to N and then be switched by N, without any IP shortest-path consideration, towards link L. If the Adj-SID identifies a set of adjacencies, then the node N load-balances the traffic among the various members of the set." https://datatracker.ietf.org/doc/rfc8402/?include_text=1 "Forwarding Information Base (FIB): the forwarding table of a node" https://datatracker.ietf.org/doc/rfc8402/?include_text=1
	provide, to the first node of the pair, the network path information for use, by the first node of the pair, in a data transmission via the at least one network path from the first node of the pair toward the second node of the pair.	The Accused Instrumentalities are required to provide, to the first node of the pair, the network path information for use, by the first node of the pair, in a data transmission via the at least one network path from the first node of the pair toward the second node of the pair. **<u>NOTE</u>**: See, for example, the evidence above and below (emphasis added, if any): **<u>SR-MPLS-Specific</u>** "MPLS Segment Routing (SR-MPLS) is a method of source routing a packet through an MPLS data plane by imposing a stack of MPLS labels on the packet to specify the path together with any packet-specific instructions to be executed on it. SR-MPLS can be leveraged to realize a source-routing mechanism across MPLS, IPv4, and IPv6 data planes by using an MPLS label stack as a source-routing instruction set while making no changes to SR-MPLS specifications and interworking with SR-MPLS implementations. . . . MPLS Segment Routing (SR-MPLS) [RFC8660] is a method of source routing a packet through an MPLS data plane. This is achieved by the sender imposing a stack of MPLS labels that partially or completely specify the path that the packet is to take and any instructions to be executed on the packet as it passes through the network. SR-MPLS uses an MPLS label stack to encode a sequence of source-routing instructions. This can be used to realize a source-routing mechanism that can operate across MPLS, IPv4, and IPv6 data planes. This approach makes no changes to SR-MPLS specifications and allows interworking with SR-MPLS implementations. More specifically, the source-routing instructions in a source-routed

		packet could be uniformly encoded as an MPLS label stack regardless of whether the underlay is IPv4, IPv6 (including Segment Routing for IPv6 (SRv6) [RFC8354]), or MPLS." https://datatracker.ietf.org/doc/rfc8663/?include_text=1 "In a centralized scenario, the segments are allocated and instantiated by an SR controller. The SR controller decides which nodes need to steer which packets on which source-routed policies. The SR controller computes the source-routed policies. The SR architecture does not restrict how the controller programs the network. Likely options are Network Configuration Protocol (NETCONF), Path Computation Element Communication Protocol (PCEP), and BGP. The SR architecture does not restrict the number of SR controllers. Specifically, multiple SR controllers may program the same SR domain. The SR architecture allows these SR controllers to discover which SIDs are instantiated at which nodes and which sets of local (SRLB) and global (SRGB) labels are available at which node. A hybrid scenario complements a base distributed control plane with a centralized controller. For example, when the destination is outside the IGP domain, the SR controller may compute an SR Policy on behalf of an IGP node. The SR architecture does not restrict how the nodes that are part of the distributed control plane interact with the SR controller. Likely options are PCEP and BGP. Hosts MAY be part of an SR domain. A centralized controller can inform hosts about policies either by pushing these policies to hosts or by responding to requests from hosts. … SR Policy: an ordered list of segments. The headend of an SR Policy steers packets onto the SR Policy. The list of segments can be specified explicitly in SR-MPLS as a stack of labels and in SRv6 as an ordered list of SRv6 SIDs. Alternatively, the list of segments is computed based on a destination and a set of optimization objective and constraints (e.g., latency, affinity, SRLG, etc.). The computation can be local or delegated to a PCE server. An SR Policy can be configured by the operator, provisioned via NETCONF [RFC6241] or provisioned via PCEP [RFC5440]. …

		Segment List Depth: the number of segments of an SR Policy. The entity instantiating an SR Policy at a node N should be able to discover the depth-insertion capability of the node N. For example, the PCEP SR capability advertisement described in [PCEP-SR-EXT] is one means of discovering this capability." https://datatracker.ietf.org/doc/rfc8402/?include_text=1

Caveat: The notes and/or cited excerpts utilized herein are set forth for illustrative purposes only and are not meant to be limiting in any manner. For example, the notes and/or cited excerpts, may or may not be supplemented or substituted with different excerpt(s) of the relevant reference(s), as appropriate. Further, to the extent any error(s) and/or omission(s) exist herein, all rights are reserved to correct the same.